

ABSTRACT OF THE DISCLOSURE

Disclosed are an apparatus for regenerating a distorted optical signal through reamplification, regenerating, and retiming processes in an optical communication network
5 and a method thereof. The apparatus includes an optical clock generation section for generating an optical clock signal of a specified frequency, an optical signal sampling section for sampling a distorted non-return-to-zero (NRZ) optical signal in synchronization with the clock signal from the optical clock generation section, an optical signal regenerating section for regenerating an output signal of the sampling section, and a return-
10 to-zero (RZ)/NRZ conversion section for converting the optical signal reshaped by the optical signal regenerating section into an NRZ optical signal. The apparatus overcomes the limitations of the signal processing speed produced in the electric 3R type regenerator, and enable the signal regenerating to be performed without the necessity of an optical clock extraction apparatus.

15